AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of ~~controlling a computer-controlled dosage device for the controlled dosage of~~administering a medicament into a body of a patient ~~to be treated~~in need of treatment with said medicament as a function of time with the aid of a computer-controlled dosage device, said method comprising the following steps:

   a) inputting an indication- and substance-dependent target profile, which indicates a desired concentration-time profile or a desired effect-time profile and a dosage time profile which describes the dose administered as a function of time into a physiology-based and/or pharmacodynamic computer model module,

   b) physiology-based pharmacokinetic and/or pharmacodynamic simulating with a time-variable application profile while taking into account individual anatomical, physiological and/or genetic parameters of the body to be treated and substance-specific input parameters of the medicament to be administered within the physiology-based and/or pharmacodynamic computer model module and outputting a simulated time profile,

   c) iterative numerical adapting of the dosage time profile until the simulated time profile matches the predetermined target profile to yield an adapted dosage time profile, and

d) outputting of the adapted dosage time profile ~~based on the result in~~of c) ~~and controlling of~~to control the dosage device according to the adapted dosage time profile, and administering said medicament to said patient using said dosage device controlled by said adapted dosage time profile.

2. (Currently Amended) The method as claimed in claim 1, wherein the ~~dosage of the medicament is carried out on humans or animals~~administering of the medicament is to a human or an animal.

3. (Currently Amended) The method as claimed in claim 1, wherein the ~~type of application~~administering is ~~one~~by an application route selected from the group consisting of intravenous application, intra-arterial application, intraperitoneal application, intramuscular application, subcutaneous application, topical application, oral application and inhalative application.

4. (Previously Presented) The method as claimed in claim 1, wherein the patient's individual parameters to be taken into account are selected from the group consisting of blood flow rates, volumes and composition of individual organs, gene expression data of metabolically active enzymes or active transporters.

5. (Previously Presented) The method as claimed in claim 1, wherein the substance-specific parameters to be taken into account are selected from the group consisting of lipophilicity, binding constants to plasma proteins, free fraction in plasma, solubility, permeability coefficient, molar mass, molar volume, and organ/plasma or organ/blood distribution coefficient.

6. (Previously Presented) The method as claimed in claim 1, wherein a numerical optimization method is used that is selected from the group consisting of: gradient methods; gradient-free methods; and stochastic methods.

7. (Previously Presented) The method as claimed in claim 1, wherein the dosage device is an electronically controlled infusion pump, an inhaler or an electronically controlled release capsule for oral application.

8. (Previously Presented) The method as claimed in claim 4, wherein one or more of the anatomical, physiological and/or genetic parameters is optionally time-variable.

9. (Previously Presented) The method as claimed in claim 4, wherein one or more of the anatomical, physiological and/or genetic parameters are measured in real-time during the application and integrated as additional input quantities into the physiology-based and/or pharmacodynamic computer model module.

10. (Currently Amended) The method as claimed in claim 1, wherein success of ~~the method~~said administering is additionally monitored online by one or more suitable measurement probes and their measurement signal or measurement signals are co-employed in order to control the dosage device.